



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/785,355	02/24/2004	Brecht Halsberghe	920522-95588	8964
23644	7590	02/10/2005	EXAMINER	
BARNES & THORNBURG P.O. BOX 2786 CHICAGO, IL 60690-2786			SEVER, ANDREW T	
			ART UNIT	PAPER NUMBER
			2851	

DATE MAILED: 02/10/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No. **10/785,355**

Applicant(s)

HALSBERGHE ET AL.

Examiner

Andrew T Sever

Art Unit

2851

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 24 February 2004 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_.

## **DETAILED ACTION**

### ***Drawings***

1. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they do not include the following reference sign(s) mentioned in the description: 104 and 106.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Applicant uses the generic number 104 and 106 in the specification, however the parts are labeled specifically 104a, 104b, and 104c (and similarly with 106, further the subparts a, b, c, are appropriately described separately in the specification.) Applicant should either label all three parts additionally the generic number or else only refer to them in the specification as 104a, 104b, 104c, 106a, 106b, and 106c.

### *Specification*

2. Applicant is reminded of the proper language and format for an abstract of the disclosure.

The abstract should be in narrative form and generally limited to a single paragraph on a separate sheet within the range of 50 to 150 words. It is important that the abstract not exceed 150 words in length since the space provided for the abstract on the computer tape used by the printer is limited. The form and legal phraseology often used in patent claims, such as "means" and "said," should be avoided. The abstract should describe the disclosure sufficiently to assist readers in deciding whether there is a need for consulting the full patent text for details.

The language should be clear and concise and should not repeat information given in the title. It should avoid using phrases which can be implied, such as, "The disclosure concerns," "The disclosure defined by this invention," "The disclosure describes," etc.

3. The abstract of the disclosure is objected to because Abstract is 2 paragraphs. Correction is required. See MPEP § 608.01(b).

The abstract includes "+Fig. 2" on a separate paragraph. This is generally not permitted in US applications/patents.

### *Claim Objections*

4. Claims 2, 4, and 7 are objected to because of the following informalities: numerous errors concerning correct use of units/and spelling of units. Appropriate correction is required.

In claim 2 applicant has chosen to spell out micrometer, in this case micrometer should be plural: micrometers. In claim 4 only one measurement has the units next to it; measurements must have the units. In claim 7, the Gpa is capitalized differently throughout the claim.

Appropriate correction is required for consistency and proper spelling.

*Claim Rejections - 35 USC § 112*

5. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

6. Claim 5 is rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

Applicant's specification does not describe how the percentages of claim 5 were calculated and/or what materials meet this requirement. The general way one would assume to calculate such percentages (by taking the thermal conductivity of the light recombining means and the intermediate part, finding the difference and then determining what percentage of the thermal conductivity of the recombining means it is); applicant's specification does not provide any materials that meet the claimed percentages at least in table 1 and the preferred embodiments. For example applicant's preferred embodiment of an alumina intermediate part according to table 1 has a thermal conductivity of 7 while optical glass (which is what the prism inherently is made of) has a thermal conductivity of 1, and the difference would be 600% and therefore applicant's own preferred embodiment would not meet the claim language.

No prior art rejection will be provided since it is unclear how these percentages are to be obtained. Applicant should analyze the materials in the cited references (both in

Art Unit: 2851

the rejections and in the pertinent prior art sections) to see if they meet applicant's intentions.

7. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

8. Claims 2, 4, 5, 7, 9 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

9. A broad range or limitation together with a narrow range or limitation that falls within the broad range or limitation (in the same claim) is considered indefinite, since the resulting claim does not clearly set forth the metes and bounds of the patent protection desired. Note the explanation given by the Board of Patent Appeals and Interferences in *Ex parte Wu*, 10 USPQ2d 2031, 2033 (Bd. Pat. App. & Inter. 1989), as to where broad language is followed by "such as" and then narrow language. The Board stated that this can render a claim indefinite by raising a question or doubt as to whether the feature introduced by such language is (a) merely exemplary of the remainder of the claim, and therefore not required, or (b) a required feature of the claims. Note also, for example, the decisions of *Ex parte Steigewald*, 131 USPQ 74 (Bd. App. 1961); *Ex parte Hall*, 83 USPQ 38 (Bd. App. 1948); and *Ex parte Hasche*, 86 USPQ 481 (Bd. App. 1949). In the present instance, claim 2 (and similarly 4, 5, 7, and 9) recites the broad recitation "less than 10 micrometer", and the claim also recites "preferably less than 5 micrometer, more preferably less than 1 micrometer." which is the narrower statement of the range/limitation.

Art Unit: 2851

Claims 4, 5, 7, and 9 use similar language (although different numbers/ranges). Claims 4, 7, and 9 will be rejected below based on at least the broadest range. Claim 2, would be objected to as being allowable if re-written in independent form including the limitations of claim 1, if this rejection were overcome. (See the allowable subject matter section for reasons for allowance.) Claim 5 has been previously treated under 35 USC 112 1<sup>st</sup> paragraph above.

*Claim Rejections - 35 USC § 102*

10. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

11. Claims 1, 3, 4, 6-8, 11, and 13-20 are rejected under 35 U.S.C. 102(b) as being anticipated by Iinuma et al. (US 6,056,407.)

Iinuma teaches in figure 5 a convergence system for a projection display system, comprising a light splitting and/or light recombining means (22), a number of spatial light modulating means (40R), and for each modulating means an intermediate part (52, 53, 54, and 55) to connect said modulating means to a side of said light splitting and/or light recombining means, whereby each of said intermediate parts has an average expansion characteristic depending upon environmental influences which is similar to the average expansion characteristics depending upon environmental influences of at least one of the

Art Unit: 2851

light splitting and/or recombining means and the light modulating means (See column 2 lines 45-64 and columns 8, 9 and the table on column 10).

*With regards to applicant's claim 3:*

See column 2 lines 45-64 which discusses among other things thermal expansion, which would at least be significant in regards to temperature.

*With regards to applicant's claim 4:*

See the list of materials on column 9 and the 2 materials on the bottom of column 8, where Fermico is shown to deviate less than the claimed ratio from that of the prism glass BK-7.

*With regards to applicant's claim 6 and 7:*

Both aluminum and FeNi alloys (such as the Fermico of Inuma) are acknowledged by the applicant in applicant's table 1 to have a Young's modulus greater than 50 GPa and in the case of Fermico greater than 100 GPa.

*With regards to applicant's claim 8:*

Part of the intermediate part (the light valve frame plate) can be made of Ceramic.



Art Unit: 2851

*With regards to applicant's claim 11:*

See part 55d for example in figure 5.

*With regards to applicants' s claim 13:*

See figure 5.

*With regards to applicant's claim 14:*

Iinuma uses adhesive (A1, A2) and screws (56) to attach various components to each other.

*With regards to applicant's claim 15:*

It is an x-cube prism. As can clearly be seen in figure 5.

*With regards to applicant's claims 16- 18, and 20:*

See figures 1-4, which show that the convergence system of Iinuma is part of a projector for projecting an image on a screen (not shown but inherent.) (It is clear from figure 5 that the intermediate part is asymmetrical (part 55e for example is not symmetrically reproduced on the other side of the frame and is designed to receive part 54e (these part numbers refer to the part surrounding the holes).)

*With regards to applicant's claim 19:*

See column 2 lines 35-44.

***Claim Rejections - 35 USC § 103***

12. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

13. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

14. Claims 9 and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Iinuma et al. as applied to claim 1, 3, 4, 6-8, 11, and 13-20 above, and further in view of Miyashita et al. (US 2004/0169784.)

As described in more detail above, Iinuma teaches a convergence system including among other things an intermediate part which is at least partially made of ceramics, however Iinuma does not teach or give any indication of what percent of said part is

made of ceramics nor does Iinuma teach that the ceramic is made of alumina ( $\text{Al}_2\text{O}_3$ ). Miyashita teaches in figure 4 an intermediate part and LCD panel for a convergence system. Miyashita teaches in paragraphs 122-124 that the plate member 610 (which is equivalent to parts 54 and 55 of Iinuma) can be made of Alumina (see paragraph 124) as a substitute for the iron nickel alloy of the preferred embodiment of both Iinuma and Miyashita. As acknowledged by the applicant in applicant's table 1, alumina has superior thermal conductivity and a higher young modulus than that of FeNi alloys and given the teaching of Miyashita that it is known to use it as the ceramic and interchangeably with FeNi alloys, it would have been obvious to one of ordinary skill in the art at the time the invention was made to make the ceramic light valve frame as well as the FeNi alloyed plate member of Iinuma out of Alumina, which would result in the entire intermediate part being made of alumina (100%). It should be noted that making the entire component out of alumina which is taught by Iinuma combined with Miyashita best meets the criteria presented in column 2 lines 45-64 of Iinuma that E2 and E3 have the same linear expansion coefficient which as acknowledged by applicant's table 1 is within the range of linear expansion coefficients of optical glass of which the splitting/combining means is made of. (Iinuma states in line 52 and 53, "It is most preferable that the linear expansion coefficient E1, E2, and E3 is the same" where E1 is that of the splitting/combining means, E2 is that of the plate member, and E3 is that of light valve frame plate; the later two being equivalent to applicant's intermediate part.)

Art Unit: 2851

15. Claim 12 is rejected under 35 U.S.C. 103(a) as being unpatentable over Inuma as applied to claims 1, 3, 4, 6-8, 11, and 13-20 above, and further in view of Fujimori et al. (US 6,844,993.)

As described in more detail above Inuma teaches a convergence system with intermediate parts, however, Inuma does not specifically teach that said intermediate parts are adjusted for sideways receipt of an analyzer means. Fujimori teaches in figures 5 and 6 analyzer means (520, a polarizer is an analyzer) which given the structure shown in figure 5 would have to be inserted sideways. Fujimori teaches in column 2 lines 34-62 that the specific analyzer taught by Fujimori has advantages over prior art analyzers (optical conversion film) in that it maintains high illuminance and prevents picture element shift among other things. Accordingly it would have been obvious to one of ordinary skill in the art at the time the invention was made to use Fujimori's analyzer and frame/mounting system in the convergence system of Inuma to prevent misalignment while maintaining high illuminance.

***Allowable Subject Matter***

16. Claim 2 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

Art Unit: 2851

17. The following is a statement of reasons for the indication of allowable subject matter:

The specific misconvergence drift was not found in the prior art. Although it is possible that prior art convergence systems meet this limitation since as described above the prior art teaches applicant's preferred materials for making a convergence system, this specific limitation may be a result of structure and not material differences and since the cited prior art is silent as to its misconvergence drift other than suggesting it has less misconvergence drift than older prior art convergence system, but not stating a numerical difference; claim 2 would be allowable if re-written in independent form including the limitations of rejected claim 1.

### *Conclusion*

18. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure:

US 6,830,338 to Ogawa teaches an LCD holder in figure 9.

US 6,819,464 to Fujimori et al. teaches in figures 7 and 8 a convergence system with intermediate parts.

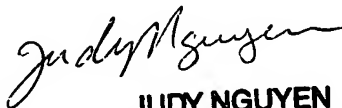
Art Unit: 2851

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Andrew T Sever whose telephone number is 571-272-2128. The examiner can normally be reached on 8:30-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Judy Nguyen can be reached on 571-272-2258. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

AS

  
**JUDY NGUYEN**  
**SUPERVISORY PATENT EXAMINER**